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मानक

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IS 12239-1 (1996): Guide for Safety and Comfort of Operator of Agricultural Tractors and Power Tillers, Part 1: General Requirements [FAD 11: Agricultural Tractors and Power Tillers]



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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

कृषि ट्रैक्टरों और पावर टिलरों के प्रचालक की सुरक्षा और
आराम के लिए मार्गदर्शिका

भाग 1 सामान्य अपेक्षाएँ
(पहला पुनरीक्षण)

Indian Standard

GUIDE FOR SAFETY AND COMFORT OF OPERATOR
OF AGRICULTURAL TRACTORS AND POWER TILLERS

PART 1 GENERAL REQUIREMENTS

(*First Revision*)

[ISO TITLE — TRACTOR AND MACHINERY FOR AGRICULTURE AND
FORESTRY — TECHNICAL MEANS OF ENSURING SAFETY]

PART 1 : GENERAL

ICS 65.060.10

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NEW DELHI 110002

NATIONAL FOREWORD

This Indian Standard (First Revision) which is identical with ISO 4254-1 : 1989 'Tractors and machinery for agriculture and forestry — Technical means of ensuring safety — Part 1 : General', issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Agricultural Tractors and Power Tillers Sectional Committee and approved by the Food and Agriculture Division Council.

This standard was first published in the year 1988 as a dual number standard. With the revision of the corresponding ISO standard in 1989, this standard is also revised in order to align it with the revised ISO standard.

In the adopted standard certain terminology and conventions are not identical with those used in the Indian Standards; attention is drawn specially to the following:

Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

In this Indian Standard, the following International Standards are referred to. Read in their respective place the following:

<i>International Standard</i>	<i>Indian Standard</i>	<i>Degree of Correspondence</i>
ISO 3600 : 1981 Tractors and machinery for agriculture and forestry — Operators manuals and technical publications — Presentation	IS 8132 : 1983 Guidelines for presentation of operator manuals and technical publications for agricultural tractors and machinery (<i>first revision</i>)	Equivalent
ISO/TR 3778 : 1978 Agricultural tractors — Maximum actuating forces required to operate controls	IS 10703 : 1992 Agricultural tractors — Maximum actuating forces required to operate controls (<i>first revision</i>)	Equivalent
ISO 3789 Tractors, machinery for agriculture and forestry — powered lawn and garden equipment — Location and method of operator controls: Part 1 : 1982 Common controls Part 2 : 1982 Controls for agricultural tractors and machinery Part 3 : 1982 Controls for powered lawn and garden equipment	IS 8133 : 1983 Guidelines for location and operation of operator controls on agricultural tractors and machinery (<i>first revision</i>) Part 1 : 1993 Hook type Part 2 : 1993 Clevis type — Dimensions	Equivalent
ISO 6489 Agricultural vehicles — Mechanical connections on towing vehicles :	IS 12362 Agricultural vehicles — Mechanical connections on towing vehicles :	Identical
Part 1 : 1980 Hook type	Part 1 : 1993 Hook type	
Part 2 : 1980 Clevis type — Dimensions	Part 2 : 1993 Clevis type — Dimensions	

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Indian Standard

GUIDE FOR SAFETY AND COMFORT OF OPERATOR OF AGRICULTURAL TRACTORS AND POWER TILLERS

PART 1 GENERAL REQUIREMENTS

(First Revision)

1 Scope

This part of ISO 4254 provides guidelines regarding the prevention of accidents arising from the use of tractors and machinery for agriculture and forestry. It also specifies technical means of improving the degree of personal safety of operators and others involved in the course of normal running, maintenance and use, intended to be carried out by the user of the machinery.

This part of ISO 4254 gives general guidelines to be met when designing tractors and machinery for agriculture and forestry.

NOTE — Subsequent parts may have wider or more limited fields of application for individual machinery types (see the Foreword).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 4254. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4254 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 500 : 1979, *Agricultural tractors — Power take-off and drawbar — Specification.*

ISO 3600 : 1981, *Tractors and machinery for agriculture and forestry — Operator manuals and technical publications — Presentation.*

ISO 3767-1 : 1982, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 1: Common symbols.*

ISO 3767-2 : 1982, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 2: Symbols for agricultural tractors and machinery.*

ISO 3767-3 : 1988, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 3: Symbols for powered lawn and garden equipment.*

ISO 3767-4 —¹⁾, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays — Part 4: Symbols for forestry machinery.*

ISO/TR 3778 : 1987, *Agricultural tractors — Maximum actuating forces required to operate controls.*

ISO 3789-1 : 1982, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Location and method of operation of operator controls — Part 1: Common controls.*

ISO 3789-2 : 1982, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Location and method of operation of operator controls — Part 2: Controls for agricultural tractors and machinery.*

ISO 3789-3 : 1982, *Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Location and method of operation of operator controls — Part 3: Controls for powered lawn and garden equipment.*

ISO 3864 : 1984, *Safety colours and safety signs.*

ISO 5673 : 1980, *Agricultural tractors — Power take-off drive shafts for machines and implements.*

ISO 5674 : 1982, *Tractors and machinery for agriculture and forestry — Guards for power take-off drive shafts — Test methods.*

ISO 5692 : 1979, *Agricultural vehicles — Mechanical connections on towed vehicles — Hitch-rings — Specifications.*

ISO 6489-1 : 1980, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 1: Hook type — Dimensions.*

ISO 6489-2 : 1980, *Agricultural vehicles — Mechanical connections on towing vehicles — Part 2: Clevis type — Dimensions.*

ISO 6815 : 1983, *Machinery for forestry — Hitches — Dimensions.*

3 Principles in providing safety

Tractors and machinery for agriculture and forestry shall be designed and constructed in such a way that they do not cause danger when properly used.

1) To be published.

Operating and maintaining the machine should be carried out in accordance with the manufacturer's instructions. These requirements shall primarily be met by the design of the machine. If this is not possible, the machine shall be equipped with special means for ensuring safety, for example guards or safe location of the dangerous parts. Functional components that need to be exposed for correct operation shall be shielded to the maximum extent permitted by the intended function of the components. Additionally, in such circumstances, warning of the hazard shall be indicated on the machine (see clause 8).

4 Moving parts treated as dangerous

In general all moving parts shall be treated as dangerous; particular attention is drawn to the following:

- all shafts (including joints, shaft ends and crank shafts), pulleys, flywheels, gearing (including friction roller mechanisms), cables, sprockets, belts, chains, clutches, couplings and all blades or wings of fans;
- the run-on point of any belt, chain or cable;
- keyways, keys and grease nipples, etc. that protrude from moving parts;
- all points where the danger of pinching or shearing is possible;
- ground wheels or tracks adjacent to the operator's position (standing platform, seat, footrest) and passenger seat (where provided).

5 Guard types

There are three types of guards designed to prevent contact by a person or clothing with moving parts. They may be classified as

- a) shields or covers;
- b) casing;
- c) enclosures;

and are described respectively in 5.1 to 5.3.

5.1 Shield or cover

Protective devices designed and fitted so that alone or with other parts of the machine, they prevent the dangerous part being reached from the side or sides covered (see figure 1).



Figure 1 — Shield and cover

5.2 Casing

Protective device designed and fitted so that, alone or with other parts of the machine, it prevents contact with the dangerous part from all sides (see figure 2).

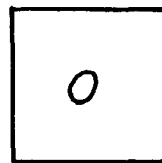


Figure 2 — Casing

5.3 Enclosure

Protective device which by means of a rail, fence, frame or the like ensures the safety distance necessary so that the dangerous part cannot be reached inadvertently.

6 Guard construction

Guards shall be sufficiently strong. Unless it is clearly inappropriate, they shall, without cracking, tearing or permanently deflecting, withstand a perpendicular static load of 1 200 N.

Parts designed as platforms and steps which are also guards shall comply with appropriate strength requirements for platforms and steps.

Where a guard is in such a position that it may occasionally be used as a step, it shall withstand a load of 1 200 N.

Guards shall be rigidly fixed, have no sharp edges, be weather-resistant and retain their strength under extremes of temperature, taking into account the intended use.

Guards shall be designed in such a way that operating and servicing the machine can be readily carried out.

Guards shall normally be permanently attached to the machine; they may be openable, in which case they should remain attached to the machine in some way, for example by means of a hinge, slide, linkage or other suitable means, and should be provided with a convenient means to keep them closed. "Permanent attachment" includes the use of threaded fasteners, split pins, or other means that can be dismantled with common hand tools.

In some circumstances it is necessary for guards which can be opened to be designed so that the movement of dangerous parts is automatically stopped when the guard is opened or the design prevents the guard being opened until all movement of the dangerous parts has ceased. This can be achieved for example by designing the guard securing device(s) so that the part will stop before the guard is opened. A suitable warning notice shall be fitted to all such guards and to any opening in them without such securing devices.

Guards may be formed of a welded or rigid mesh or grille. The size of the opening permitted depends on the distance between the guard and the moving part as given in clause 7. The design of the guard shall be such that it is not possible to distort the mesh or the grille during proper use in such a way that the opening size and distance relationship exceeds the limits given in clause 7.

7 Safety distance

There may be circumstances where the requirements of clause 3 can be met by ensuring a safety distance, as described in 5.3, from the dangerous part.

It is possible to circumvent the protection provided by a safety distance (as specified in 7.1) by the misuse of steps, ladders, boxes or chairs, etc., but the general principle of a safety distance, in compliance with clause 3, is acceptable provided the criteria in 7.1 and 7.2 are met so that the dangerous parts are out of reach.

7.1 Safety distance from dangerous part

The safety distance is based on measurements from the location which a person can occupy to operate, maintain or inspect the dangerous part.

7.1.1 Upward reach

The safety distance for upward reach is 2 500 mm for persons standing upright.

7.1.2 Reach below barriers

No safety distance is specified where it is possible to reach below a safety barrier, unless the aperture is small enough to be considered only in relation to finger, hand or arm access in which case the requirements of 7.1.6 apply.

7.1.3 Reach over barriers

Barriers the height of which is less than 1 000 mm above the location which a person can occupy shall not be acceptable.

The safety distance for sideward or downward reach over barriers of 1 000 mm or greater height depends on

- the distance from the ground level to the dangerous part;
- the height of the guard;
- the horizontal distance between the dangerous part and the guard.

When designing a barrier, the dimensions in table 1 shall be met (see figure 3).

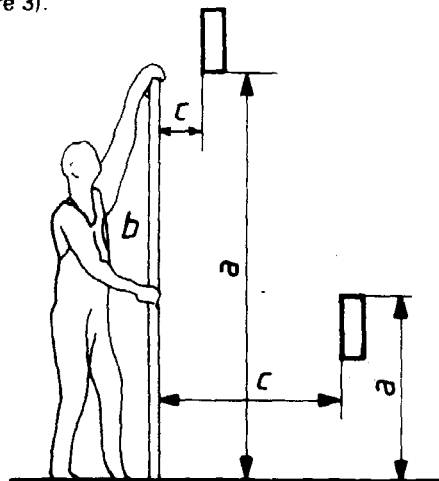


Figure 3 — Principles for determining the distance required from a guard to the dangerous part

Table 1 — Downward and sideward safety distance

Dimensions in millimetres

a	h ¹⁾							
	2 400	2 200	2 000	1 800	1 600	1 400	1 200	1 000
2 400	—	100	100	100	100	100	100	100
2 200	—	250	350	400	500	500	600	600
2 000	—	—	350	500	600	700	900	1 100
1 800	—	—	—	600	900	900	1 000	1 100
1 600	—	—	—	500	900	900	1 000	1 300
1 400	—	—	—	100	800	900	1 000	1 300
1 200	—	—	—	—	500	900	1 000	1 400
1 000	—	—	—	—	300	900	1 000	1 400
800	—	—	—	—	—	600	900	1 300
600	—	—	—	—	—	—	500	1 200
400	—	—	—	—	—	—	300	1 200
200	—	—	—	—	—	—	200	1 100

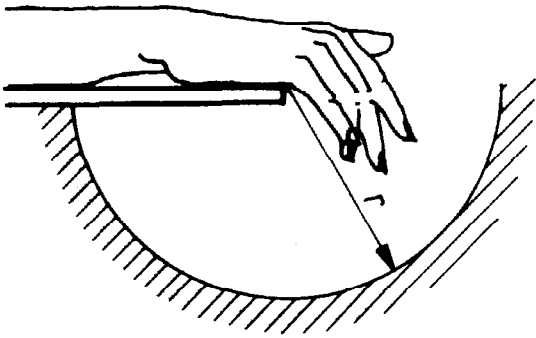
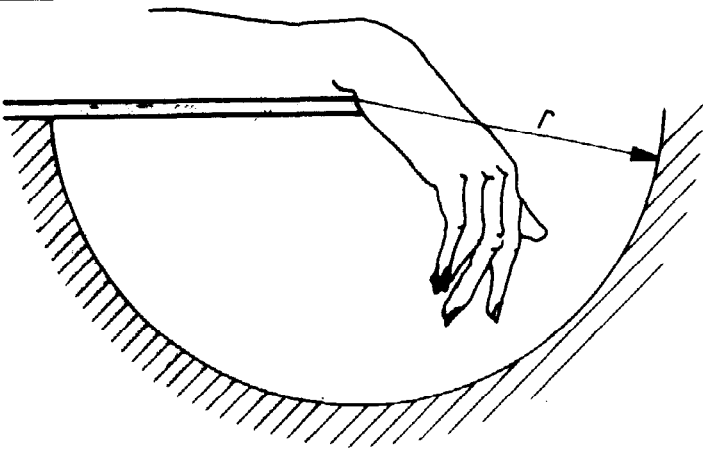
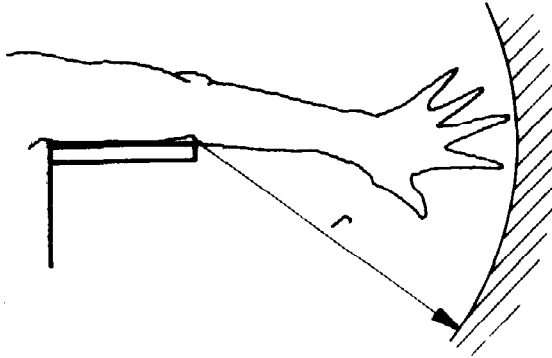
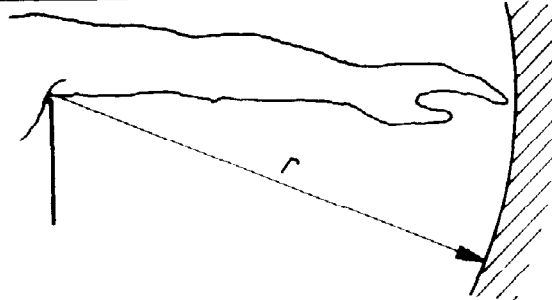
1) Values of h < 1 000 mm do not increase the reach. Moreover, the danger arises of falling towards the danger source.

7.1.4 Round reach

Table 2 shows the extent of reach around barriers which can be attained, taking into account the aperture and the distance from other obstructions. Dangerous components shall be beyond these limits if they are not independently guarded.

Table 2 – Extent of reach

Dimensions in millimetres

Limb		Illustration	Safety distance, r
From	To		
Finger base	Finger tip		$r > 120$
Wrist	Finger tip		$r > 230$
Elbow	Finger tip		$r > 550$
Shoulder	Finger tip		$r > 850$

7.1.5 Inside reach through guards

The safety distances depend on the shape of the openings.

7.1.6 Openings

The openings shall not exceed the size appropriate to the distance of the guard from the moving part [see tables 3a) and 3b)].

Table 3a) — Reach dimensions through rectangle or slot

Dimensions in millimetres

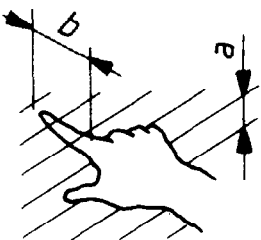
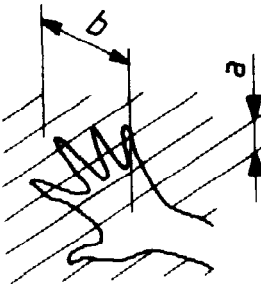
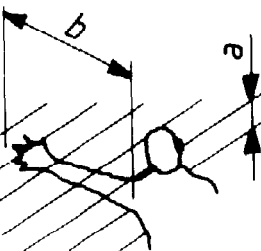
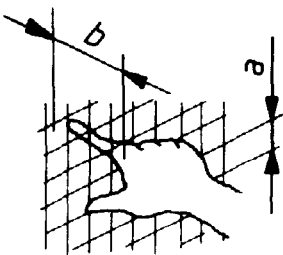
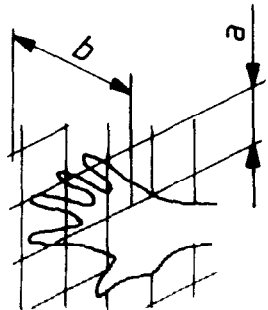
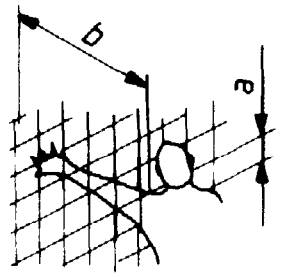
Limb	Illustration	Width of aperture (rectangle or slot), <i>a</i>	Safety distance to danger source, <i>h</i>
Finger tip		$4 < a < 8$	$h > 15$
Finger		$8 < a < 20$	$h > 120$
Hand		$20 < a < 30$	$h > 200$
Arm		$30 < a < 135^{1)}$	$h > 850$
1) When the width is greater than 135 mm, part of the body can also pass through the aperture. In this case, safety distances as specified in 7.2 shall be observed.			

Table 3b) — Reach dimensions through mesh or grille

Dimensions in millimetres

Limb	Illustration	Width of aperture (diameter or lateral length), a	Safety distance to danger source, h
Finger tip		$4 < a < 8$	$h \geq 15$
Finger		$8 < a < 25$	$h \geq 120$
Hand		$25 < a < 40$	$h \geq 200$
Arm		$40 < a < 250$	$h \geq 850$

7.1.6.1 Polygonal openings

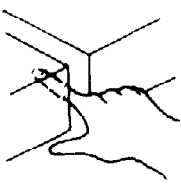
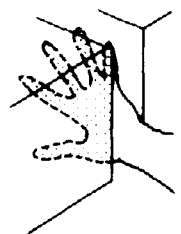
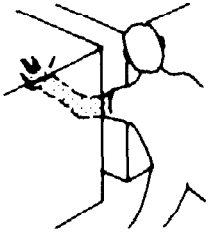
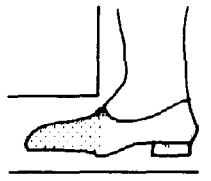
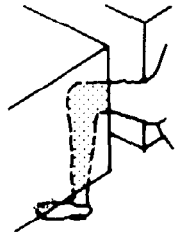
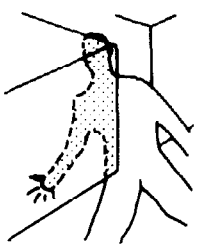
Polygonal openings, where the diameter of the largest circle that can be inscribed is not less than half the distance between the two apexes that are the furthest apart, shall meet the same requirements as for round openings. The diameter of the inscribed circle shall be regarded as the size of the opening. All other polygonal openings shall be regarded as slots.

7.2 Pinching points

A pinching point is considered dangerous for the parts of the body illustrated in table 4 if the appropriate minimum separation distance is not maintained. The design of the machine shall ensure that the next bigger part of the body cannot pass through.

Table 4 - Minimum separation distances for pinching points

Dimensions in millimetres

Limb	Illustration	Minimum separation distance required
Finger		25
Hand Wrist Fist		100
Arm		120
Foot		120
Leg		180
Body		500

8 Provision of information

8.1 Operating manuals

Where safety precautions are necessary during operation and servicing of agricultural machines, appropriate instructions shall be provided with the machine (see ISO 3600).

Operating manuals shall also include a warning that a revolving hitch, for example as defined in ISO 6815, or a revolving clevis, for example as defined in ISO 6489-2, shall not be connected with a mating unit which also revolves on a towed machine or trailer.

8.2 Warning notices

Durable warning notices shall be affixed to the machine where parts present danger to the operator. Also included are circumstances where the inadvertent lowering of parts of equipment can cause danger. Particular danger or safety warnings shall be indicated on the notice. Symbols, layout and colours to be used for safety signs should preferably be in accordance with ISO 3864.

Existing national or other regulations may require specific symbols, sizes, layout or colour. The warning notice shall be either pictorial or text in a language acceptable to the user or, if appropriate, the national regulating authority concerned.

9 Working stability

Machines and trailers that may create a danger to the user through tilting, as a result of the centre of gravity moving (for example when emptying or filling), shall be provided with means of preventing such danger.

Hydraulically raised components that need to be held in a raised position to allow servicing or adjustment shall be provided with an independent and reliable means of retaining them in the required position.

10 Operator's workplace

10.1 Handholds and steps

Any machine on which the presence of a driver or operator is necessary, including any place to which access is required for service or maintenance, shall be fitted with handles or handholds and steps so the person has a safe, convenient means of mounting and dismounting.

Both handholds and steps may be parts of the machine if they are suitably designed and placed. Steps shall be designed in relation to the general construction in order to ensure protection from moving parts. If moving parts, for example tyre sections, form restrictions or trapping areas with the steps, a suitable means of protection shall be provided. Steps shall have a non-slip surface and a vertical retainer at both sides.

The dimensions for steps will normally be found in the parts of this International Standard relating to specific machines. Where there is no specific provision, the steps shall comply with the dimensions in figure 4.

Where access is provided by a series of steps which are designed to be used alternately each by one foot, then the minimum width and height specified do not apply.

10.2 Operating positions

Means shall be provided to prevent the operator from falling from his workplace. Any platform on which the operator is required to stand during the operation of the machine shall be level and shall have a non-slip surface and, if appropriate, provision for drainage.

The platform shall be provided with a foot-guard (toe-board) on all sides, which shall be fitted around the edge of the platform, or not more than 50 mm outside it, and shall extend not less than 75 mm above the platform, and with a guard-rail which shall be not less than 1 000 mm and not more than 1 100 mm above the platform. There shall also be an intermediate rail so that the vertical distance between any two rails does not exceed 500 mm.

However, it is not necessary to provide a foot-guard or fixed guard-rails for the platform:

- a) when the machine itself affords protection at least equal to that which the foot-guard and guard-rail would provide if these were fitted;
- b) where it is necessary to permit the access of persons or movement of material; a rail or chain shall be provided across the access when the machine is operating.

10.3 Seats

On a machine on which the operator is required to sit, a seat shall be provided which will adequately support him in all working and operating modes and prevent him from slipping off the seat. Adequate and comfortable support and protection for the feet shall be provided.

10.4 Operating control

The operating controls, such as steering-wheels or -levers, gear-levers, cranks, pedals, and switches, shall be arranged and fitted in such a way as to allow safe and easy control and manipulation by an operator in the normal operating position. Pedals and controls shall be positioned so that they do not obstruct access. The function of the controls shall be marked on or near the control in accordance with ISO 3767 and ISO 3789, and shall meet the requirements of ISO/TR 3778 where appropriate.

10.4.1 Steering mechanism

The steering mechanism shall be so designed as to reduce the force of any sudden movement of the steering-wheel or -lever(s) due to reaction from the steered wheel(s).

10.4.2 Lifting and lowering controls

Provision shall be made to protect or locate controls so as to prevent accidental operation which may cause dangerous movement.

10.4.3 Clutches (Drive engagement controls)

The requirements of ISO 3789 shall be complied with where appropriate.

10.4.4 Stopping devices for power sources

Every power source shall be fitted with a device by means of which it can be stopped quickly. It shall be so designed that it does not depend on sustained manual effort for its operation and that, when it is in the "stop" position, the power source cannot be started unless the device is reset manually.

This device shall be readily accessible

- on manned machines: to the operator in his normal operating position;
- on unmanned machines: on or near the power source or near the operating control position.

The purpose and method of operation shall be clearly indicated. The control shall be red and preferably contrast with the background and other controls.

10.4.5 Valves, taps and switches

In the case of hand-operated valves, taps and switches or their means of control provided for controlling pneumatic, hydraulic or electrical systems, the function and effect of the device in each of its positions shall be clearly indicated, where necessary for safety reasons.

10.4.6 Pedals

Pedals shall be of adequate size and of appropriate configuration. They shall have slip-resistant surfaces in order to minimize the possibility of the operator's foot slipping off the pedals, and where necessary be provided with a rim at the edge of the pedal.

10.4.7 Differential locks

Any manually operated device fitted to a machine to lock the differential gear shall be designed and fitted so that there is a clear indication to the operator that the lock is engaged. It shall be designed so that it minimizes the possibility of inadvertent actuation.

11 Means for moving and supporting machines

11.1 Hitches

Mobile machines that are not self-propelled shall be provided with suitable hitch devices. Machines used for towing or which are towed shall be provided with a towing device constructed and fitted to be secure for the purpose.

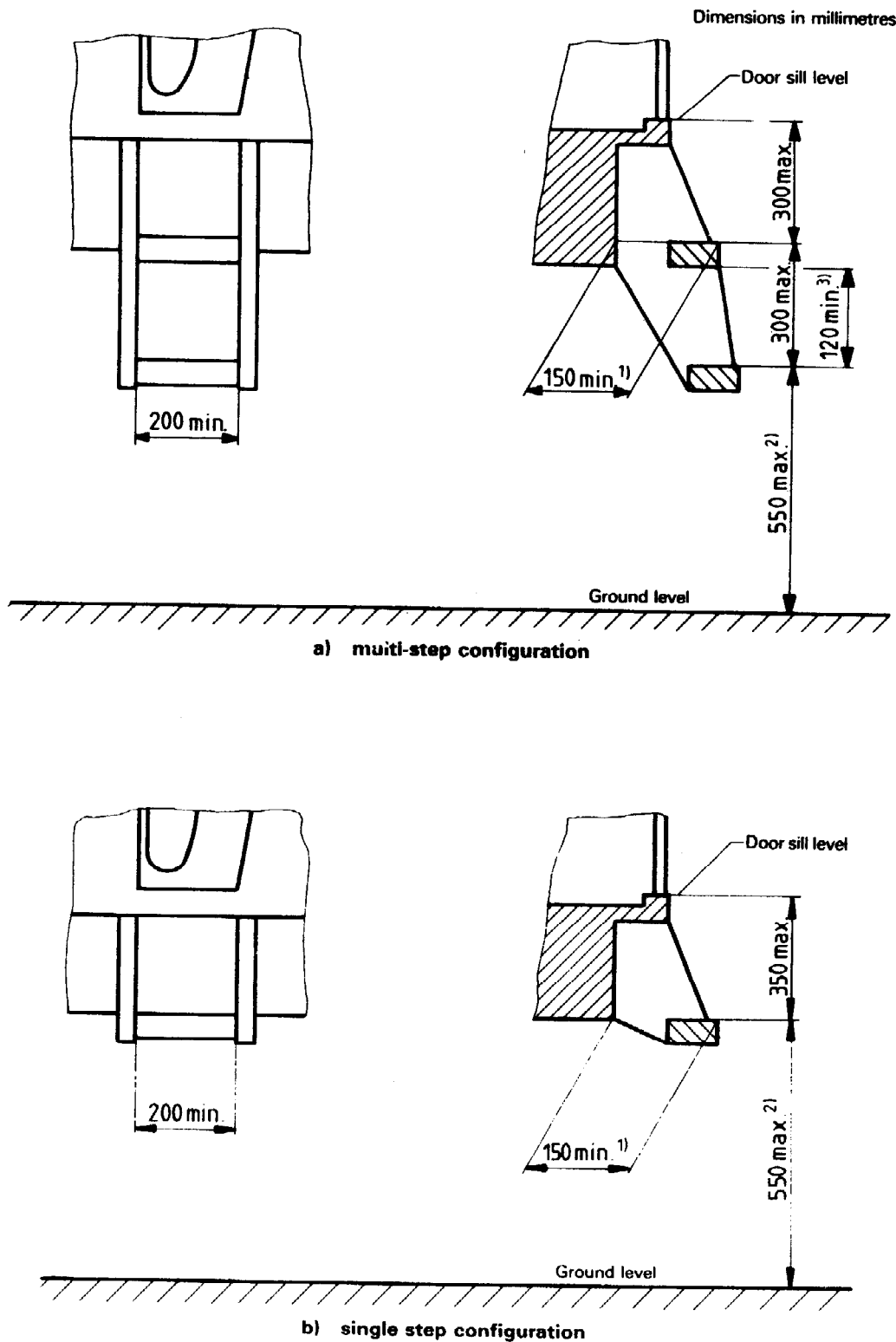


Figure 4 — Limiting dimensions of steps

- 1) Minimum clearance and not size of tread surface.
- 2) The dimensions shall be obtained also with the largest tyres (normally inflated).
- 3) The vertical distance between adjacent steps shall be equal (within a tolerance of ± 20 mm).

11.1.1 Hitch hook

If the towing machine is equipped with a hitch hook, it shall be in accordance with ISO 6489-1. The towed machine shall, in such a case, have a drawbar eye according to ISO 5692.

11.1.2 Drawbars

The design of the couplings shall be in accordance with ISO 500 and shall preclude clevis to clevis attachment.

11.2 Jacks and supports

11.2.1 Machines which are not stable when disconnected shall be provided with a jack or other support to prevent tilting.

Supports shall be attached (to avoid the risk of losing them), but they may be detachable only if this is necessary to permit the machine to operate.

11.2.2 Non-stable machines or trailers having a drawbar shall be provided with a jack capable of raising or lowering the drawbar.

The jack shall be constructed and secured to the machine so as to prevent the drawbar from falling when the jack is in use and shall have a base of adequate size to prevent it sinking into soft ground.

This requirement applies to

- all trailers of unladen mass exceeding 500 kg;
- any other machine when the machine is unladen and the downward force acting through the drawbar at the hitch point exceeds 250 N. The downward force acting through the drawbar shall be measured with the machine stationary on horizontal ground and the drawbar hitch point at a height of 400 mm above the ground.

This requirement shall not apply to a machine or trailer the drawbar of which is designed to be picked up mechanically by the towing vehicle, but in such cases a stand capable of securely supporting the drawbar with the hitch point 150 mm above the ground level shall be fitted.

12 Power transmission

12.1 Power take-off (PTO)

The PTO shall be protected as indicated in 12.1.1 to 12.1.3.

12.1.1 When in use, a cover or, if necessary, a casing that protects the sides of the PTO, shall be fitted.

12.1.2 An additional non-rotating casing, for use when the cover or casing is not in position and when the PTO is not in use, shall be provided. This casing shall encase the PTO completely and be fixed to the tractor or machine body.

12.1.3 The provisions covering construction of guards (see clause 6) shall also be met.

12.2 Power intake connection (PIC)

The PIC shall be protected as indicated in 12.2.1 and 12.2.2.

12.2.1 A casing which completely encloses the PIC and overlaps the casing fitted to the PTO drive-shaft so that no part of the shaft (or couplings, clutches, etc.) is exposed at any time shall be fitted.

12.2.2 The provisions covering construction of guards (see clause 6) shall also be met.

12.3 PTO drive-shafts

The drive-shaft shall meet the requirements of ISO 5673 and be protected as indicated in 12.3.1 to 12.3.3.

12.3.1 A casing which provides stationary protection against contact with the PTO drive-shaft and protects the shaft throughout its length (whether the machine is towed, mounted or semi-mounted) shall be fitted.

12.3.2 The guard shall be firmly mounted, i.e. it shall be detachable only by means of tools. It may be permanently fitted to the shaft.

12.3.3 The provisions covering construction of guards (see clause 6 and ISO 5674) shall also be met.

13 Miscellaneous

13.1 Exhaust pipes

The outlet of the exhaust pipe shall be located and directed in such a way that the driver or any other operator obliged to stand on the machine will not normally be exposed to harmful concentrations of noxious gases or fumes, for example by locating the outlet over or to the side of the head level of the operator or the air intake of the cab.

13.2 Hot parts

Protection shall be provided to minimize the possibility of inadvertent contact with any exposed element which may cause burns during mounting, dismantling or operating the tractor or machine.

13.3 Battery

The location of the batteries shall be such that hazards to the operator due to fumes and electrolyte are minimized.

(Continued from second cover page)

The technical committee responsible for the preparation of this Indian Standard reviewed the provisions of the following ISO standards and has decided that they are acceptable for use in conjunction with this standard:

<i>International Standard</i>	<i>Indian Standard</i>	<i>Degree of Correspondence</i>
ISO 500 : 1979 Agricultural tractors — Power take off and drawbar — Specification	IS 4931 : 1995 Agricultural tractor — Rear mounted power take-off type 1,2,3 (<i>third revision</i>)	Related
ISO 3767 Tractors, machinery for agriculture and forestry, powered lawn and garden equipment — Symbols for operator controls and other displays:	IS 6283 : 1971 Symbols for operator controls on agricultural tractors and farm machinery	Related
Part 1 : 1982 Common symbols		
Part 2 : 1982 Symbols for agricultural tractors and machinery		
Part 3 : 1988 Symbols for powered lawn and garden equipment		
Part 4 Symbols for forestry machinery (under draft stage)	IS 9457 : 1980 Safety colours and safety signs	Related
ISO 3864 : 1984 Safety colours and safety signs	IS 10318 : 1982 Technical requirements for power take-off drive shafts for agricultural tractors and machines	Related
ISO 5673 : 1980 Agricultural tractors — Power take-off drive shafts for machines and implements	IS 8265 : 1996 Agricultural tractors — Guards for power take-off (PTO) drive-shafts (<i>second revision</i>)	Related
ISO 5674 : 1982 Tractors and machinery for agriculture and forestry — Guards for power take-off drive shafts — Test methods*	IS 11270 : 1985 Technical requirements for ring-type hitches for agricultural trailers	Related
ISO 5692 : 1979 Agricultural vehicles — Mechanical connections on towed vehicles — Hitch rings — Specifications	No corresponding IS	
ISO 6815 : 1983 Machinery for forestry — Hitches — Dimensions		

In this adopted standard the reference of ISO 500 : 1979 has been made for the requirement of drawbar (see 11.1.2). This ISO standard has since been revised in 1993 and covers the requirements of power take-off only; the requirement of drawbar is now separately covered in ISO 6489-3 : 1993 for which an Indian Standard IS 12363 (Part 3) : 1993 also exists which is identical with ISO standard.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed, or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*ISO 5674 is revised in 1993 into two parts: Part I covering the Requirements of Strength Test and Part II the Wear Test.

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